

views in reference to lichens were fully stated in a review of his *Text-book of general lichenology*, published in the GAZETTE (25:284. 1898), and there is no need to repeat them here. On account of existing difficulties of nomenclature, the author omits all citation of authorities, stating that "the names given are well authenticated, so that those who have the desire and the opportunity may enter into the consideration of the synonymy and the nomenclature controversy." A selection is made of the more common forms of lichens occurring in the United States, those with which the collector is most likely to come in contact.

The first part of the book discusses lichens in general, under such headings as "The history of lichenology," "The use of lichens," "What are lichens," "The morphology and physiology of lichens," "The occurrence and distribution of lichens," and "Lichens and the naturalist," under which last title directions for collection, study, and preservation are given.

The second part is devoted to the systematic presentation of the group, an artificial key being provided for the more important genera, and a natural key for the families. A check list of lichens occurring in the United States is also given, useful to those who wish to make exchanges or to get some knowledge of the extent of the group and its various genera.—J. M. C.

MINOR NOTICES.

A NEAT MANUAL of seventy-nine pages and half a hundred cuts has been recently issued by W. Edgar Taylor, professor of biology in the Louisiana Industrial Institute, for the use of his classes. The printing was done and many of the drawings were made by pupils of the school, and the result is creditable. It is intended solely to meet local needs, including lessened cost to the pupils, and, although in book form, is of the nature of extended laboratory notes. It goes over the ground of the cryptogamous plants and unicellular animals, with an introduction on the cell.—J. C. A.

THE SECOND PART of the Welwitsch Catalogue of African plants, by W. P. Hiern, and published by the British Museum, has just appeared, including Combretaceæ to Rubiaceæ. The occasion of the publication was stated in the review of the first part published in the GAZETTE (23:210. 1897). Although the date of the collections is 1853-1861, the region has been so little explored that the book is full of new material. In the present part the great family Rubiaceæ is of much interest, three new genera (*Pentacarpæa*, *Justenia*, and *Chalazocarpus*) and fifty-eight new species being described. The only other new genus is *Campylochiton* (Combretaceæ).—J. M. C.

A LITTLE BOOK before us by Clarence Moores Weed, entitled *Seed travelers*, has been prepared as a supplementary reader in connection with nature

study in the schools.⁶ The author recommends "that this little book be used in connection with observations upon the specimens treated of; that the studies be read by the individual pupils, either with the objects in hand or for the purpose of inciting them to search for the specimens. . . . It may then be advisable, after most of parts have been read, to review the whole subject by having the pupils begin at the first of the book and read it through consecutively, with or without studying the objects again." With this purpose in mind the author has described the way in which the wind and birds act as distributors of seed. He has, also, very briefly shown the method of seed distribution by spines and hooks. The book is attractively written and is accurate as to its facts. The illustrations, as a whole, are fairly good, but are very unequal in quality. The style is not always simple, but the book generally will be quite intelligible to children. This is an addition to the list of available nature readers, and as such is to be warmly welcomed.—C. R. B.

THE GENUS *Cyclamen* has been studied by Dr. Friedrich Hildebrand, whose results have recently been published.⁷ The necessity of associating ecologic and taxonomic studies is becoming more and more apparent, and the monograph before us is a worthy type of the most effective method of investigating plant groups. The genus was very favorable for such study, containing only thirteen species, and all of them accessible, being restricted to the Mediterranean region. In the disentanglement of herbarium material and literature, the author has found sufficient names already provided, except in the case of *C. alpinum*. It is the so-called "biological" part, however, that is of chief interest, and that deserves especial commendation to our taxonomists. Any adequate review would mean a synopsis of the work.—J. M. C.

THE SERIES of classics in various exact sciences, which are being published by Engelmann, has been enriched by the addition of no. 95, which includes four papers by Ernst von Brücke.⁸ These papers are as follows: I, Blüten des Rebstockes; II, Bewegungen der *Mimosa pudica* (1848); III, Elementarorganismen (1861); IV, Brennhaare von *Urtica*. All these papers are interesting, especially to show how at an early period in the study of plant physiology exact and careful experimentation led to well-founded and stable results. Probably the best known of the four papers is the second one, which Sachs calls a model of accurate experimentation and clear presentation. Brücke was trained for medicine, and in 1843 became an assistant in the Museum of Comparative Anatomy through his relations with Johannes Müller.

⁶ WEED, CLARENCE MOORES.—Seed travellers: study of methods of distribution of various common seeds. 12mo. pp. vii + 53, *figs.* 36. Boston: Ginn & Co. 1898.

⁷ HILDEBRAND, DR. FRIEDRICH.—Die Gattung *Cyclamen* L., eine systematische und biologische Monographie. pp. 190. *pl.* 6. Jena: Gustav Fischer. 1898. *M.* 8.

⁸ Ostwald's Klassiker der exacten Wissenschaften no. 95. Physiologische Abhandlungen. 12mo. pp. 86. Leipzig: Wilhelm Engelmann. 1898. *M.* 1.40.

Shortly he turned his attention to physiology, and was soon made associate professor at Königsberg. In 1849 he was called to the professorship of physiology in Vienna. Here he remained to his seventieth year as teacher and indefatigable investigator, surrounded by numerous pupils, who were inspired by his vigor and enthusiasm. In 1889 he retired from active work, and died in 1892. His industry and success are somewhat indicated by the long list of scientific papers—one hundred and thirty—which he published.—C. R. B.

NOTES FOR STUDENTS.

A THIRD ARTICLE, by the colonial botanist, F. M. Bailey, enumerating the fresh-water algæ of Queensland, is issued as Botany Bulletin XV by the Queensland Department of Agriculture. The thirty-eight pages are accompanied by seventeen excellent plates from pen drawings.—J. C. A.

ITEMS OF TAXONOMIC interest are as follows: In the last fascicle of *Pittonia* (3: 329-344. 1898) Professor Greene continues his descriptions of new species of *Convolvulus*, nine of which are described; proposes four new species of Canadian violets, from Macoun collections; and describes a fascicle of new labiates, thirteen in number.—S. B. Parish has begun in *Erythea* (6: 85-92. 1898) a series of important papers on new or little known plants of southern California. The first one discusses about fifty plants, describing five new species and six new varieties.—J. M. C.

A NEW SPECIES of *Pleodorina*, *P. Illinoisensis*, is described by C. A. Kofoid in a recent Bulletin of the Illinois State Laboratory of Natural History, and illustrated with two plates showing form and development. Comparisons are made with *P. Californica*, now known from Indiana and Illinois as well as California. It is also pointed out that there are some reasons for thinking that the new form may be only a stage in the development of *Eudorina*, probably of *E. elegans*. We note an omission in the bibliography of the article by Severance Burrage on "A new station for *Pleodorina Californica*" in *Proc. Ind. Acad.* 1895: 99-100.—J. C. A.

AT A RECENT meeting of the Imperial Academy of Sciences in Vienna, Dr. Wilhelm Figdor, assistant in the institute for plant physiology of the University of Vienna, read a paper entitled "Investigations upon the phenomena of sap pressure (*Blutungsdruckes*) in the tropics." A summary of his results is translated from the *Österreichische Botanische Zeitschrift* 48: 359. 1898.

"1. In the tropics in contrast with the prevalent relations in our latitudes, there is always a positive sap pressure, which shows a very different intensity in the various plants observed.

"2. The amount of sap pressure attained in general is two or three times